

AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated below. Material inserted is indicated by underlining and material deleted is indicated by strikethrough.

1. (Original) An indicator macromolecule for detecting the presence or concentration of an analyte in an aqueous environment, said macromolecule comprising a copolymer of:

- a) one or more indicator component monomers which individually are not sufficiently water soluble to permit their use in an aqueous environment for detecting the presence or concentration of said analyte; and
- b) one or more hydrophilic monomers;

such that the macromolecule is capable of detecting the presence or concentration of said analyte in an aqueous environment.

2. (Original) The indicator macromolecule of claim 1, wherein the macromolecule is capable of detection by an optical change.

3. (Original) The indicator macromolecule of claim 1, wherein the indicator component monomer comprises an N-(o-boronobenzyl)aminomethylanthracene derivative.

4. (Currently amended): The indicator macromolecule of claim 3, wherein the indicator component monomer is selected from the group consisting of

9-[N-methacryloylaminopropyl-N-(o-boronobenzyl)amino]-methyl]anthracene;

9-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-hydroxyethoxy)-ethylamino]methyl]anthracene;

9-[N-(2-boronobenzyl)-N-[3-(methacrylamido)-propylamino]methyl]-10-[N-(2-boronobenzyl)-N-[2-(2-hydroxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]anthracene;

9,10-bis[N-(2-boronobenzyl)-N-[3-(methacrylamido)-propylamino]methyl]anthracene;

9-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-methacroyloxyethoxy)ethylamino]methyl]-10-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-hydroxyethoxy)-ethylamino]methyl]anthracene;

9-[N-(2-boronobenzyl)-N-[2-(2-methacroyloxyethoxy)-ethylamino]methyl]-10-[N-[2-boronobenzyl]]-N-[2-(2-hydroxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-

methacroyloxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N-(2-boronobenzyl)-N-[2-(2-methacroyloxyethoxy)ethylamino]methyl]anthracene;

~~N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;~~

~~a,a'-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene,~~

and salts or derivatives thereof.

5. (Original) The indicator macromolecule of claim 3, wherein the hydrophilic monomer comprises [3-(methacryloylamino)-propyl]trimethylammonium chloride.

6. (Original) The indicator macromolecule of claim 1, wherein the indicator component monomer is selected from the group consisting of a lanthanide chelate and a polyaromatic hydrocarbon.

7. (Original) The indicator macromolecule of claim 1, wherein the molar ratio of hydrophilic monomer:indicator component monomer is from about 2:1 to about 1000:1.

8. (Original) The indicator macromolecule of claim 7,
wherein the ratio of hydrophilic monomer:indicator component
monomer is from about 5:1 to about 50:1.

9. (Original) The indicator macromolecule of claim 8,
wherein the ratio of hydrophilic monomer:indicator component
monomer is about 5:1.

10. (Original) The indicator macromolecule of claim 1,
wherein the analyte detected is selected from the group
consisting of a vicinal diol; an α -hydroxy acid, a β -keto acid
oxygen; carbon dioxide; zinc, potassium, hydrogen, or carbonate
ions; a toxin; a mineral; and a hormone.

11. (Original) The indicator macromolecule of claim
10, wherein the analyte detected is a vicinal diol which
comprises a saccharide.

12. (Original) The indicator macromolecule of claim
11, wherein the saccharide is glucose.

13. (Original) The indicator macromolecule of claim 1,
wherein

- i) the molar ratio of hydrophilic monomer:indicator component monomer is from about 2:1 to about 15:1,
- ii) the indicator component monomer comprises an N-(o-boronobenzyl)amino]methyl]anthracene derivative,
- iii) the hydrophilic monomer comprises [3-(methacryloylamino)propyl]trimethylammonium chloride, and
- iv) the macromolecule exhibits an excimer effect.

15 ~~14~~. (Original) A method for the production of an indicator macromolecule for detecting the presence or concentration of an analyte in an aqueous environment, said method comprising copolymerizing:

- a) one or more indicator component monomers which individually are not sufficiently water soluble to permit their use in an aqueous environment for detecting the presence or concentration of said analyte; and
 - b) one or more hydrophilic monomers;
- such that the resulting macromolecule is capable of detecting the presence or concentration of said analyte in an aqueous environment.

16 ~~15~~ ¹⁵. (Original) The method of claim ~~14~~, wherein the macromolecule is capable of detection by an optical change.

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16. (Original) The method of claim ~~14~~¹⁵, wherein the indicator component monomer comprises an N-(o-boronobenzyl)aminomethylanthracene derivative.

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18. (Currently amended): The method of claim ~~16~~¹⁷, wherein the indicator component monomer is selected from the group consisting of

9- [[N-methacryloylaminopropyl-N- (o-boronobenzyl) amino] - methyl] anthracene;

9- [N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl] - N- [3- (methacrylamido)propylamino]methyl] -10- [N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl] -N- [2- (2-hydroxyethoxy) - ethylamino]methyl] anthracene;

9- [N- (2-boronobenzyl) -N- [3- (methacrylamido) - propylamino]methyl] -10- [N- (2-boronobenzyl) -N- [2- (2- hydroxyethoxy)ethylamino]methyl] anthracene;

9,10-bis[N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2- yl)benzyl] -N- [3- (methacrylamido)propylamino]methyl] anthracene;

9,10-bis[N- (2-boronobenzyl) -N- [3- (methacrylamido) - propylamino]methyl] anthracene;

9- [N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl] - N- [2- (2-methacroyloxyethoxy)ethylamino]methyl] -10- [N- [2- (5,5- dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl] -N- [2- (2-hydroxyethoxy) - ethylamino]methyl] anthracene;

9- [N- (2-boronobenzyl) -N- [2- (2-methacroyloxyethoxy) - ethylamino]methyl] -10- [N- [2-boronobenzyl)] -N- [2- (2-hydroxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N- [2- (5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl] -N- [2- (2-methacroyloxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N- (2-boronobenzyl) -N- [2- (2-methacroyloxyethoxy)ethylamino]methyl]anthracene;

N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;

~~α,α'-bis[N- [2- (5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl] -N- [3-(methacrylamido)propylamino]-1,4-xylene,~~
and salts or derivatives thereof.

19 ~~18~~. (Original) The method of claim ~~14~~, wherein the hydrophilic monomer comprises [3-(methacryloylamino)-propyl]trimethylammonium chloride.

20 ~~19~~. (Original) The method of claim ~~14~~, wherein the indicator component monomer is selected from the group consisting of a lanthanide chelate and a polyaromatic hydrocarbon.

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21 26. (Original) The method of claim 14, wherein the molar ratio of hydrophilic monomer:indicator component momomer is from about 2:1 to about 1000:1.

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22 21. (Original) The method of claim 20, wherein the ratio of hydrophilic monomer:indicator component momomer is from about 5:1 to about 50:1.

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23 21. (Original) The method of claim 21, wherein the ratio of hydrophilic monomer:indicator component momomer is about 5:1.

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24 23. (Original) The method of claim 14, wherein the analyte detected is selected from the group consisting of a vicinal diol; an α -hydroxy acid; a β -keto acid; oxygen; carbon dioxide; zinc, potassium, hydrogen, or carbonate ions; a toxin; a mineral; and a hormone.

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25 24. (Original) The method of claim 23, wherein the analyte detected is a vicinal diol which comprises a saccharide.

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26 25. (Original) The method of claim 24, wherein the saccharide is glucose.

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26. (Original) The method of claim 24, wherein
- i) the molar ratio of hydrophilic monomer:indicator component monomer is from about 2:1 to about 15:1,
 - ii) the indicator component monomer comprises an N-(o-boronobenzyl)aminomethylanthracene derivative,
 - iii) the hydrophilic monomer comprises [3-(methacryloylamino)propyl]trimethylammonium chloride, and
 - iv) the macromolecule exhibits an excimer effect.

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27. (Original) A method for detecting the presence or concentration of an analyte in a sample having an aqueous environment, said method comprising:

a) exposing the sample to an indicator macromolecule, said macromolecule comprising a copolymer of:

- i) one or more indicator component monomers which individually are not sufficiently water soluble to permit their use in an aqueous environment for detecting the presence or concentration of said analyte; and
- ii) one or more hydrophilic monomers;

such that the resulting macromolecule is capable of detecting the presence or concentration of said analyte in an aqueous environment, and wherein the indicator macromolecule has a

detectable quality that changes in a concentration-dependent manner when said macromolecule is exposed to said analyte; and

b) measuring any change in said detectable quality to thereby determine the presence or concentration of said analyte in said sample.

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30 ~~28~~. (Original) The method of claim ~~27~~, wherein the change in said detectable quality is an optical change.

31 ~~29~~. (Original) The method of claim ~~27~~, wherein the indicator component monomer comprises an N-(o-boronobenzyl)aminomethylanthracene derivative.

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32 ~~30~~. (Currently amended): The method of claim ~~29~~, wherein the indicator component monomer is selected from the group consisting of

9-[[N-methacryloylaminopropyl-N-(o-boronobenzyl)amino]-methyl]anthracene;

9-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-hydroxyethoxy)-ethylamino]methyl]anthracene;

9- [N- (2-boronobenzyl) -N- [3- (methacrylamido) - propylamino]methyl] -10- [N- (2-boronobenzyl) -N- [2- (2-hydroxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl]-N- [3- (methacrylamido)propylamino]methyl]anthracene;

9,10-bis[N- (2-boronobenzyl) -N- [3- (methacrylamido) - propylamino]methylanthracene;

9- [N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl] - N- [2- (2-methacroyloxyethoxy)ethylamino]methyl] -10- [N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl]-N- [2- (2-hydroxyethoxy)ethylamino]methyl]anthracene;

9- [N- (2-boronobenzyl) -N- [2- (2-methacroyloxyethoxy)ethylamino]methyl] -10- [N- [2-boronobenzyl]] -N- [2- (2-hydroxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl] -N- [2- (2-methacroyloxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N- (2-boronobenzyl) -N- [2- (2-methacroyloxyethoxy)ethylamino]methyl]anthracene;

N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;

~~α,α'-bis[N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl]-N- [3- (methacrylamido)propylamino]-1,4-xylene]~~

and salts or derivatives thereof.

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31. (Original) The method of claim ~~27~~, wherein the hydrophilic monomer comprises [3-(methacryloylamino)-propyl]trimethylammonium chloride.

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32. (Original) The method of claim ~~27~~, wherein the indicator component monomer is selected from the group consisting of a lanthanide chelate and a polycyclic aromatic hydrocarbon.

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33. (Original) The method of claim ~~27~~ wherein the molar ratio of hydrophilic monomer:indicator component monomer is from about 2:1 to about 1000:1.

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34. (Original) The method of claim ~~33~~, wherein the ratio of hydrophilic monomer:indicator component monomer is from about 5:1 to about 50:1.

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35. (Original) The method of claim ~~34~~ wherein the ratio of hydrophilic monomer:indicator component monomer is about 5:1.

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36. (Currently amended) The method of claim ~~27~~, wherein the analyte detected is selected from the group consisting of a vicinal diol; an α -hydroxy acid; a β -keto acid;

saccharide; oxygen; carbon dioxide; and zinc, potassium, hydrogen, or carbonate ions; a toxin; a mineral; and a hormone.

39 ~~37~~. (Currently amended) The method of claim ~~36~~,
wherein the analyte detected is a vicinal diol which comprises a saccharide.

40 ~~38~~. (Original) The method of claim ~~37~~, wherein the saccharide is glucose.

41 ~~39~~. (Original) The method of claim ~~37~~, wherein
i) the molar ratio of hydrophilic monomer:indicator component momomer is from about 2:1 to about 15:1,
ii) the indicator component monomer comprises an N-(o-boronobenzyl)aminomethylanthracene derivative,
iii) the hydrophilic monomer comprises [3-(methacryloylamino)propyl]trimethylammonium chloride, and
iv) the macromolecule exhibits an excimer effect.

42 ~~40~~. (Original) The method of claim ~~39~~, wherein said macromolecule serves as both an indicator and a reference.

44 ~~41~~. (Original) A macromolecule which is capable of exhibiting an excimer effect, which comprises a copolymer of:

- a) one or more excimer forming monomers, the molecules of which are capable of exhibiting an excimer effect when suitably oriented with respect to each other; and
- b) one or more other monomers;
- such that the resulting macromolecule exhibits said excimer effect.

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45 ~~42~~. (Original) The macromolecule of claim ~~41~~, wherein the macromolecule is capable of detecting the presence or concentration of an analyte.

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46 ~~43~~. (Original) The macromolecule of claim ~~42~~, wherein

a) the excimer forming monomer individually is not sufficiently water soluble to permit its use in an aqueous environment for detecting the presence or concentration of said analyte; and

b) the other monomer is a hydrophilic monomer;

such that the macromolecule is capable of detecting the presence or concentration of said analyte in an aqueous environment.

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47 ~~44~~. (Original) The macromolecule of claim ~~42~~, wherein the excimer effect does not substantially change in response to changes in the presence or concentration of the analyte.

48 45. (Original) The macromolecule of claim 44, wherein

i) the molar ratio of other monomer:excimer forming monomer is from about 2:1 to about 15:1,

ii) the excimer forming monomer comprises an N-(o-boronobenzyl)aminomethylanthracene derivative, and

iii) the other monomer comprises [3-(methacryloylamino)propyl]trimethylammonium chloride.

49 46. (Original) The macromolecule of claim 41, wherein the excimer forming monomer is selected from the group consisting of a lanthanide chelate and a polyaromatic hydrocarbon.

50 47. (Currently amended): The macromolecule of claim 45, wherein the excimer forming monomer is selected from the group consisting of

9- [[N-methacryloylaminopropyl-N-(o-boronobenzyl)amino]-methyl]anthracene;

9- [N- [2- (5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N- [3- (methacrylamido)propylamino]methyl]-10- [N- [2- (5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N- [2- (2-hydroxyethoxy)-ethylamino]methyl]anthracene;

9- [N- (2-boronobenzyl)-N- [3- (methacrylamido)-propylamino]methyl]-10- [N- (2-boronbenzyl)-N- [2- (2-hydroxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]anthracene;

9,10-bis[N-(2-boronobenzyl)-N-[3-(methacrylamido)-propylamino]methylanthracene;

9-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-methacroyloxyethoxy)ethylamino]methyl]-10-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-hydroxyethoxy)-ethylamino]methyl]anthracene;

9-[N-(2-boronobenzyl)-N-[2-(2-methacroyloxyethoxy)-ethylamino]methyl]-10-[N-(2-boronobenzyl)-N-[2-(2-hydroxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-methacroyloxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N-(2-boronobenzyl)-N-[2-(2-methacroyloxyethoxy)ethylamino]methyl]anthracene;

N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;

~~α,α'-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene,~~
and salts or derivatives thereof.

52 48. (Original) A method for producing a macromolecule which is capable of exhibiting an excimer effect, which method comprises copolymerizing:

a) one or more excimer forming monomers, the molecules of which are capable of exhibiting an excimer effect when suitably oriented with respect to each other; and

b) one or more other monomers;

such that the resulting macromolecule exhibits said excimer effect.

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53 49. (Original) The method of claim *48*, wherein the macromolecule is capable of detecting the presence or concentration of an analyte.

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54 50. (Original) The method of claim *49*, wherein

a) the excimer forming monomer individually is not sufficiently water soluble to permit its use in an aqueous environment for detecting the presence or concentration of said analyte; and

b) the other monomer is a hydrophilic monomer; such that the macromolecule is capable of detecting the presence or concentration of said analyte in an aqueous environment.

~~55~~ 51. (Original) The method of claim ~~49~~, wherein the excimer effect does not substantially change in response to changes in the presence or concentration of the analyte.

~~56~~ ~~52~~ 55. (Original) The method of claim ~~51~~, wherein
i) the molar ratio of other monomer:excimer forming monomer is from about 2:1 to about 15:1,
ii) the excimer forming monomer comprises an N-(o-boronobenzyl)aminomethylanthracene derivative, and
iii) the other monomer comprises [3-(methacryloylamino)propyl]trimethylammonium chloride.

~~57~~ ~~53~~ 52. (Original) The method of claim ~~48~~, wherein the excimer forming monomer is selected from the group consisting of a lanthanide chelate and a polyaromatic hydrocarbon.

~~58~~ ~~54~~ 56. (Currently amended): The method of claim ~~52~~,
wherein the excimer forming monomer is selected from the group consisting of
9- [[N-methacryloylaminopropyl-N-(o-boronobenzyl)amino]-methyl]anthracene;
9- [N- [2- (5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N- [3- (methacrylamido)propylamino]methyl]-10- [N- [2- (5,5-dimethyl-

[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-hydroxyethoxy)-ethylamino)methyl]anthracene;

9-[N-(2-boronobenzyl)-N-[3-(methacrylamido)-propylamino)methyl]-10-[N-(2-boronobenzyl)-N-[2-(2-hydroxyethoxy)ethylamino)methyl]anthracene;

9,10-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino)methyl]anthracene;

9,10-bis[N-(2-boronobenzyl)-N-[3-(methacrylamido)-propylamino)methyl]anthracene;

9-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-methacroyloxyethoxy)ethylamino)methyl]-10-[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-hydroxyethoxy)-ethylamino)methyl]anthracene;

9-[N-(2-boronobenzyl)-N-[2-(2-methacroyloxyethoxy)-ethylamino)methyl]-10-[N-(2-boronobenzyl)-N-[2-(2-hydroxyethoxy)ethylamino)methyl]-anthracene;

9,10-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[2-(2-methacroyloxyethoxy)ethylamino)methyl]anthracene;

9,10-bis[N-(2-boronobenzyl)-N-[2-(2-methacroyloxyethoxy)ethylamino)methyl]anthracene;

N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;

~~α,α' -bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene,~~
and salts or derivatives thereof.

~~60~~ 55. (Original) A method for detecting the presence or concentration of an analyte in a sample, said method comprising:

a) exposing the sample to an indicator macromolecule, said macromolecule comprising a copolymer of:

i) one or more indicator component monomers,

the molecules of which are capable of exhibiting an excimer effect when suitably oriented with respect to each other, and which are also capable of detecting the presence or concentration of an analyte; and

ii) one or more other monomers;

such that the resulting macromolecule exhibits said excimer effect, and wherein the indicator macromolecule has a detectable quality that changes in a concentration-dependent manner when said macromolecule is exposed to said analyte; and

b) measuring any change in said detectable quality to thereby determine the presence or concentration of said analyte in said sample.

61 56. (Original) The method of claim ~~55~~, wherein the excimer effect does not substantially change in response to changes in the presence or concentration of the analyte.

62 57. (Original) The method of claim ~~56~~, wherein
i) the molar ratio of other monomer:indicator component monomer is from about 2:1 to about 15:1,
ii) the indicator component monomer comprises an N-(o-boronobenzyl)amino]methyl]anthracene derivative, and
iii) the other monomer comprises [3-(methacryloylamino)propyl]trimethylammonium chloride.

63 58. (Original) The method of claim ~~55~~, wherein the indicator component monomer is selected from the group consisting of a lanthanide chelate and a polyaromatic hydrocarbon.

64 59. (Currently amended) The method of claim ~~51~~,
wherein the indicator component monomer is selected from the group consisting of

9-[[N-methacryloylaminopropyl-N-(o-boronobenzyl)amino]-methyl]anthracene;

9- [N- (2-boronobenzyl) -N- [2- (2-methacroyloxyethoxy) -
ethylamino]methyl] -10- [N- (2-boronobenzyl) -N- [2- (2-
hydroxyethoxy)ethylamino]methyl] -anthracene; and

9,10-bis[N- (2-boronobenzyl) -N- [2- (2-
methacroyloxyethoxy)ethylamino]methyl]anthracene;

9- [N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl] -
N- [3- (methacrylamido)propylamino]methyl] -10- [N- [2- (5,5-dimethyl-
[1,3,2]dioxaborinan-2-yl)benzyl] -N- [2- (2-hydroxyethoxy) -
ethylamino]methyl]anthracene;

9- [N- (2-boronobenzyl) -N- [3- (methacrylamido) -
propylamino]methyl] -10- [N- (2-boronobenzyl) -N- [2- (2-
hydroxyethoxy)ethylamino]methyl]anthracene;

9,10-bis[N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-
yl)benzyl] -N- [3- (methacrylamido)propylamino]methyl]anthracene;

9,10-bis[N- (2-boronobenzyl) -N- [3- (methacrylamido) -
propylamino]methyl]anthracene;

9- [N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl] -
N- [2- (2-methacroyloxyethoxy)ethylamino]methyl] -10- [N- [2- (5,5-
dimethyl- [1,3,2]dioxaborinan-2-yl)benzyl] -N- [2- (2-hydroxyethoxy) -
ethylamino]methyl]anthracene;

9,10-bis[N- [2- (5,5-dimethyl- [1,3,2]dioxaborinan-2-
yl)benzyl] -N- [2- (2-
methacroyloxyethoxy)ethylamino]methyl]anthracene;

~~N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;~~
~~α,α'-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene;~~
and salts or derivatives thereof.

14 ~~50~~. (New) The indicator macromolecule of claim 1,
wherein the indicator component monomer is selected from the
group consisting of:

~~N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;~~
~~α,α'-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene;~~
and salts or derivatives thereof.

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28 ~~51~~. (New) The method of claim ~~14~~, wherein the
indicator component monomer is selected from the group consisting
of:

~~N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;~~
~~α,α'-bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene;~~
and salts or derivatives thereof.

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43 ~~62~~. (New) The method of claim ~~21~~, wherein the indicator component monomer is selected from the group consisting of:

N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;
 α,α' -bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene;
and salts or derivatives thereof.

51 ~~63~~. (New) The macromolecule of claim ~~41~~, wherein the excimer forming monomer is selected from the group consisting of:

N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;
 α,α' -bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene;
and salts or derivatives thereof.

59 ~~64~~. (New) The method of claim ~~48~~, wherein the excimer forming monomer is selected from the group consisting of:

N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracenesulfonamide;
 α,α' -bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene;
and salts or derivatives thereof.

(60)

65. (New) The method of claim 55, wherein the indicator component monomer is selected from the group consisting of:

N-[3-(methacrylamido)propyl]-3,4-dihydroxy-9,10-dioxo-2-anthracesulfonamide;

α,α' -bis[N-[2-(5,5-dimethyl-[1,3,2]dioxaborinan-2-yl)benzyl]-N-[3-(methacrylamido)propylamino]-1,4-xylene;

and salts or derivatives thereof.